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History of Pre and Perinatal (PPN) Parenting Education
A literature review

Christine McKee, Peta Stapleton, and Aileeen M. Pidgeon

Abstract: This literature review focuses on the history of pre- and perinatal (PPN) parenting education. The topic constituted one area examined to inform four-studies included in a PhD program of research that investigated factors to consider when designing, developing, and delivering PPN parenting programs for the 21st century. This article discusses six topics that include: (a) an historical overview of PPN education in general; (b) programs and interventions that target mothers-only; (c) programs and interventions that target fathers-only; (d) programs and interventions that target couples during the transition to parenthood; and (e) opportunities for developing needs-based programs for future parents that can be empirically measured for effectiveness.

Keywords: parenting, literature review, pre- and perinatal psychology

Literature discussing pre- and perinatal (PPN) parenting education dates back 800 years (Polomeno, 2009). PPN parenting education has been defined as the knowledge, skills, and instructions provided to parents on how they can most effectively achieve their role as parents (Ponzetti, 2016). This includes ways to positively contribute to a preborn's and later child's emotional, cognitive, social, and physical development (Ponzetti, 2016). Polomeno (2009) formulated a historical overview of PPN parenting education dating from the 1300s to early 2000s. In brief, trends regarding

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pregnancy and childbirth information dissemination have progressed from intergenerational transmission from woman-to-woman via the family unit in the 1300s to the 1800s (Lewis-Rowley, Brasher, Moss, Dunn, & Stiles, 1993), to the appearance of parenting advice books beginning in the late 1700s (Brock, Oertwein, & Coufal, 1993; Grille, 2005), to the inclusion of midwives leading up to the 1800s (Polomeno, 2009).

By the 1900s, formal PPN education gained momentum via the American Red Cross on their mission to improve maternal and infant health (Polomeno, 2009). Starting in 1910 (and continuing for more than 100 years), the Cooperative Extension Services (CES) in the USA have been leaders in the development of parenting education, specifically through the use of the National Extension Parenting Education Model (NEPEM) (DeBord, 2016). This model incorporated six content areas of parenting skills (care for self, understand, guide, nurture, motivate, and advocate) cultivated from empirical literature that were taught by trained parenting educators and focused on parenting post-birth and beyond (DeBord, 2016). A strength of this model was its design as a framework rather than a curriculum, thus allowing content to change aligning with ever evolving theories, best practices, and changes to parents' and childrens' needs (DeBord, 2016).

In the 1920s, the Child Study Association (CSA) of America conducted research by way of expert study groups. Research outcomes resulted in the following: CSA collated teaching materials for parent educators, advocacy for formal licensing of educators, and inclusion of fathers in parenting program initiatives (Lewis-Rowley et al., 1993). Due to the CSA's efforts, 75 major organizations were conducting parent education programs by the end of the 1920s (Brim, 1959). The 1920s also saw the introduction of John B. Watson's (1913) Behaviorism Theory in parenting programs, which emphasized skills in maternal nurturing to maximize child health and development (e.g., bonding and connecting with a preborn and baby once born through communication and minimizing stress) (Ponzetti, 2016).

By the late 1930s, parent education offerings were significantly reduced. Government funding for family education in the USA decreased, in part due to research outcomes that questioned the stability of families (e.g., increased divorce rates) and in response to economic difficulties during the Great Depression (Brim, 1959; Lewis-Rowley et al., 1993). However, with the economic boost in the USA post World War II (during the 1950s and 1960s), research and education money was again available for pregnancy and parenting research and teachings.

From the 1930s to the 1950s, pain management education gained popularity, including the Lamaze psychoprophylactic method for childbirth (which involved laboring mothers using breathing techniques as a form of pain relief, instead of drugs). This movement gathered

momentum worldwide (e.g., USA, Europe, Australia, South Africa, and Canada) in the 1950s and beyond. By mid-century, journal publications in the field of family life education, such as *Marriage and Family Living,* emerged, along with the formulation of organizations (e.g., National Council on Family Relations, NCFR, 1984) that advocated for education relating to healthy families (Arcus, 1995). In the early 1950s, concerns surrounding the certification of educators and facilitators delivering Family Education programs were predicted to minimize the growth of the field (Longworth, 1952). In the 1960s, the first certification program for childbirth educators was created by the American Society for Psychoprophylaxis in Obstetrics (ASPO) (Polomeno, 2009).

Parenting education research escalated through the 1970s and 1980s with Skinner's Behavior Modification Theory (1953) becoming a popular underpinning in post-birth parenting programs. Techniques for operant conditioning via reward and punishment principles were incorporated, such as Gordon's (1978) Parent Effectiveness Training (Ponzetti, 2016). The 1980s also saw the inclusion of graduate programs in Family Life Education in the tertiary educations systems in the USA (Arcus, 1995). Family Life Education began in response to societal changes that directly impacted families. This included increased numbers of mothers and fathers in the workforce, as well as roles within families changing to both parents being responsible for primary caregiving (Hicks & Williams, 1981).

Agencies such as the Committee on Education Standards and Certification for Family Life educators were generated to monitor, set and regulate standards for teaching criteria and educator qualifications (Arcus, 1995). Programs that focused on communication skills for enriching couple and family relationships were also generated (e.g., Mace & Mace, 1986).

PPN Education Interventions for Parents: 21st Century

Current parenting practice still focuses parenting psychoeducation on the time closest to birth as well as the fourth trimester. This has been evidenced in parenting support options and interventions such as the Bringing Baby Home (BBH) psycho-educational, 16-hour workshop offered in Seattle, USA (Dion, 2005). This program was co-created by John and Julie Gottman, who are considered world-leading researchers in the field of marriage and family. BBH embraced the quality of the mother/father relationship as an influencing factor on a successful transition into parenthood (defined by low levels of depression and maintained relationship quality and intimacy) (Gottman, Shapiro, & Parthemer, 2004). The program was administered by birth professionals who focused on strengthening a couple's relationship; they shared basic

parenting tips and infant development knowledge to expecting parents and new parents (Gottman et al., 2004). Other programs have also targeted the time closest to birth and the first few months post-birth (e.g., Collins & Fetsch, 2012; Johansson, Landahl, & Adolfsson, 2011). However, the content has often been limited by focus on prenatal markers and how to care for a baby post-birth. Outcomes have not consistently correlated with strong improvements in parenting capability (Petch & Halford, 2008).

The influence of technology on PPN parenting interventions.

As technology, research capability, and media advanced towards the end of the century, so did developments in PPN parenting education. With today's internet superhighway and social media, there are seemingly endless opportunities; geography is no longer a barrier to program attendance. Technology provides enormous flexibility in content delivery and consumer reach including: greater participant reach; diversity of educational content; openness by both parents and birth professionals to learn a wide array of perspectives and skills in the prenatal, birth and postnatal arena; and a wide array of formats and delivery methods.

Regardless of the type of service expectant parents' access, Fukkink, Vink, and Bosscher (2014) maintain that it needs to be delivered in a non-judgmental, inclusive, needs-based way. Further, offerings need to be cost effective, flexible in delivery approach and based on science (Long, 2016). As Polomeno (2009) aptly acknowledged, we have entered a place of advanced practice in PPN education.

Consumer Groups for Programs

Examining the history of PPN parenting programs for parents in greater depth revealed three relevant categories of consumer groups for programs. These included mothers only, fathers only, and couples transitioning to parenthood.

Mothers as the primary focus in PPN parenting interventions.

There are a range of focus areas that PPN parenting programs for mothers only have included. Three areas that have been empirically researched and continue to be important when developing future PPN parenting programs include: maximizing bonding and attachment, mitigating maternal anxiety, and teenage mothers.

Program focus: Maximizing bonding and attachment

To maximize mother-infant bonding and attachment, Panthuraamphorn (1998) discussed the importance of fathers in his Prenatal Infant Stimulation program. This was in response to research that supported the notion that fathers have a critical role in influencing a pre-born's growth and interaction during pregnancy as well as supporting a mother's ability to bond with her child (Cranley, 1981; Leifer, 1980). Whilst Panthuraamphorm (1998) acknowledged the critical role a father plays, only mothers received the program. The Prenatal Infant Stimulation program was administered to 24 pregnant women in total (with equal numbers in the treatment and control groups). The control group mothers attended routine antenatal care and the treatment group mothers attended the program that was delivered in two-hour sessions, four times per month. The program comprised two stages whereby stage one began in the 12th week of pregnancy and included content and skills to enable prenatal bonding. Examples included ways to interact with the father and the importance of abdominal touch, breathing, visualization, and relaxation exercises in preparation for birth.

The second stage began in the 20th week of gestation and included skills on how to maximize a positive environment through touch, sound, and movement (Panthuraamphorn, 1998). Here the emphasis was on educating participating mothers' that their thoughts and feelings may impact emotional and intellectual growth of the pre-born (Panthuraamphorn, 1998). This theory has been well supported (Lipton, 2002, 2008; Michaud, 2012).

Results from Panthuraamphorn's (1998) study were measured against physical markers of growth post-birth. There was no statistical significance between babies born across the two groups in terms of weight or height. Head circumference was statistically significant at one and two months post birth ($p<.008$), but not at birth ($p=.158$). Additionally, the results showed babies born to treatment group mothers had stronger personal-social development scores than did control group babies as measured by the Denver Developmental Screening Test. This indicated that the program may have influenced physical and personal-social development of the babies. However, limitations included the small sample size as well as the lack of direct inclusion of fathers, even though the author stated the critical importance of their role to influence a mother's ability to bond with her baby.

Program focus: Mitigating maternal anxiety

Research has widely supported that maternal pregnancy anxiety has been linked to negative postnatal outcomes such as low birth weight,

premature delivery and lower than average Apgar scores, which measures various aspects of the physical condition of a newborn such as heart rate, respiration, muscle tone, reflexes, and skin coloration (Berle et al., 2005). The best possible score is ten and a score ranging from seven to nine is considered normal (e.g., Berle et al., 2005; Dragonas & Christodoulou; 1998; Rondo et al., 2003). In an attempt to mitigate such outcomes, Consonni et al. (2010) conducted a non-randomized controlled trial in Brazil. Thirty-eight women participated in the ten-week Multidisciplinary Program for Childbirth and Motherhood Preparation (MPCMP). Sessions ranged between 50 minutes and three hours. Content focused on pregnancy related information and how to care for a newborn. Additionally, women were given a tour of the maternity unit and taught breathing and relaxation techniques. Women were provided with opportunities to discuss their personal pregnancy and emotional experiences (Consonni et al., 2010). The control group comprised 29 pregnant women who attended routine prenatal care only at the Botucatu School of Medicine, San Paulo, Brazil.

Results showed statistically significant differences in birth delivery method. Specifically, those who completed the MPCMP predominantly had vaginal deliveries (81.6%; $p<.05$), whilst caesarean section births were higher for the control group (41.4%; $p<.05$). Results were not significantly different however for birth weight and premature delivery between the groups. State anxiety was also significantly reduced at the end of the pregnancy for the treatment group ($p<.05$). Given the increase in published research demonstrating partner support is positively linked to lower levels of maternal anxiety (e.g., Maldonado-Duran, Lartigue, & Feintuch, 2000), one of the limitations of this study was that it only included mothers.

Program focus: Teenage mothers

Teenager mothers are an at-risk group for a wide array of negative pregnancy and birth-related outcomes including preterm births, low birth weight babies, and infant mortality (Coley & Nichols, 2016). Old's (2008) Nurse Family Partnership (NFP) program aimed to improve pregnancy outcomes (e.g., birth weight, positive parenting) by improving prenatal health in teenage mothers. The program was designed to be delivered via multiple home visits by nurses trained in the NFP program (Glover & Sutton, 2012; Landy, Jack, Wahoush, Sheehan, & MacMillan, 2012). It has been administered and evaluated within the USA (Kitzman et al., 1997; Olds, Henderson, Chamberlain, & Tatelbaum, 1986; Olds et al., 2002), Canada (Landy et al., 2012) and the United Kingdom (Robling et al., 2016). Results have yielded significant increases in healthy prenatal health behaviors such as reduced smoking and alcohol consumption,

increased parental care post-birth, and reductions in child abuse and neglect (Olds, 2008).

Not all studies utilizing the NFP program have obtained positive results however. Robling et al. (2016) conducted a non-blinded, randomized control trial in the UK. Participants were recruited from across 18 corporations licensed to deliver NFP and resulted in the inclusion of 1,645 first-time teenage mothers (n=823 in the NFP group; n=822 in routine prenatal care group). No significant differences were observed across the main outcomes of tobacco use throughout pregnancy and birthweight.

While conflicting results from NFP program studies exist, they did highlight that there are vulnerable groups when pregnancy is considered (teenage expecting parents being only one). Gaining a deeper understanding of women's perceptions of the importance of attending PPN education may further guide design and delivery of future programs.

Women's perceived importance of and access to PPN parenting programs

To evaluate women's perceptions of the value of PPN parenting education, Hollins Martin and Robb (2013) conducted a qualitative (thematic analysis) study. Postnatal women (n=228) provided verbatim feedback to questions on the Birth Satisfaction Scale (BSS; Hollins Martin, & Fleming, 2011). Results varied—some indicated no need for PPN parenting education whilst others aligned with the perception that preparation is better (Hollins Martin & Robb, 2013). While the study looked at PPN parenting education in the scope of labor and birth and included mothers only, Hollins Martin and Robb (2013) did identify the lack of inclusion of fathers as an opportunity for further research.

Canadian researchers have also looked at expecting mothers' use of prenatal education programs. Research has shown that two-thirds of women, pregnant for the first time, attended prenatal education programs (Public Health Agency of Canada, 2009). The cohort study of Godin et al. (2015) included 511 pregnant women in Ontario, Canada. It involved pre and post surveys of pregnancy related knowledge that focused on healthy pregnancy, healthy lifestyle and breastfeeding. The study required completion of a prenatal education program offered through seven public health units either online or in person. Results indicated significant increases in knowledge across all three content areas (p<.01). However, only 2.3% of participants began the program in trimester one (Godin et al., 2015). Since this time period has been shown to be critical for healthy development of the pre-born, Godin et al. (2015) recommended that women access PPN parenting programs at this stage of the pregnancy. It was acknowledged that the motivation to learn about labor, birth, and

breastfeeding may not be perceived as a priority by expecting mothers this early in the pregnancy (Godin et al., 2015). Therefore, program developers need to critically consider timing when each curriculum topic is scheduled for delivery, to ensure it is linked to the appropriate stage of pregnancy (Godin et al., 2015). Further, before designing future PPN parenting programs, it is necessary to understand why women choose to invest in healthcare education prior to conceiving.

To assess why women chose parenting education pre-conception, Barrett et al.'s (2015) study involved qualitative interviews with twenty pregnant women from London, UK. Each interview was completed either by telephone or in person. Results indicated that the women who prepared and planned for pregnancy (e.g., taking folic acid, changing diet and lifestyle to support healthy pregnancy, attending classes to learn about pregnancy, birth and becoming a parent) did so to create a foundation for positive birth and parenting outcomes (Barrett et al., 2015).

While research has shown that expecting mothers value PPN parenting program outcomes, understanding expecting fathers' perception of and involvement in these programs is equally important.

Fathers as the primary focus in PPN parenting interventions

The inclusion of fathers in PPN parenting education has advanced in the past 50 years. Modern day fathers spend significantly more time with their children (Sayer, Bianchi, & Robinson, 2004) than their male counterparts in the 1960s and 1970s (Walsh et al., 2014). Broadly speaking, father involvement can include any activity engaged in that leads to an optimal pregnancy, birth, and beyond (Bond, Heidelbaugh, Robertson, Alio, & Parker, 2010). Inclusion of fathers in PPN parenting programs have had positive associations with attachment security (Heinowitz, 1995; Raikes, Summers, & Roggman, 2005), emotional regulation of babies post-birth (Roggman, Boyce, Cook, Christiansen, & Jones, 2004), and on the children's cognitive development (Alio, Salihu, Kornosky, Richman, & Marty, 2010; Cabrera, Shannon, & Tamis-LeMonda, 2007; Nugent, 1991).

As well, adverse outcomes for pregnant mothers and their pre-born have been shown to exist when fathers were not included in PPN education programs (Sahip & Turan, 2007). For example, without the support of the expecting father, a mother may be unable to use the knowledge and skills learned in prenatal classes. Therefore, fathers need to understand the value of these skills in terms of himself, his partner, and his pre-born to support them (Roth & Mbizvo, 2001; Sahip & Turan, 2007).

The role of health practitioners in including fathers

Since the turn of the century, pregnancy and birth health professionals have increased their emphasis to directly encourage men to be more involved during the PPN timeframe (Plantin, Olukoya, & Ny, 2011). Health practitioners have made progressive changes by including fathers in PPN parenting initiatives with positive outcomes. Examples include: (a) an equitable division of labor in the household during pregnancy and post-birth (Roth & Mbizvo, 2001); (b) being prepared for birth (Shefner-Rogers & Sood, 2004); (c) emotional support of the mother (Hartmann, Gilles, Shattuck, Kerner, & Guest, 2012); (d) encouragement and support of breastfeeding (Pisacane, Continisio, Aldinucci, D'Amora, & Continisio, 2005); (e) enhanced communication and satisfaction in the couple relationship (Gottman et al., 2004; Karney & Bradbury, 1995); and (f) enhanced role identity as a father early into a pregnancy (Plantin et al., 2011). More broadly, father involvement can include any activity engaged in that leads to an optimal pregnancy, birth, and beyond (Bond et al., 2010).

Integrating fathers into PPN parenting programs has resulted in documented positive impacts on fathers themselves as well as on the couple's relationship and on the pre-born, newborn, child and beyond. However, difficulties continue to exist for health practitioners planning PPN parenting program content and delivery.

Difficulties health practitioners face in including fathers.

One of the difficulties commonly cited, to account for a lack of male inclusion in PPN parenting programs, is that the times sessions are typically offered coincide with work schedules (e.g., Humphries & Nolan, 2015; Moore & Kotelchuck, 2004). To overcome this, a six-session program designed for expecting fathers was offered in workplaces in Istanbul, Turkey (Sahip & Turan, 2007). The program content related to the following: health during pregnancy, pregnancy nutrition, birth, communication techniques, infant health care and feeding, fatherhood, and family health after birth (Sahip & Turan, 2007). Eighty expectant fathers completed six three-hour group sessions facilitated in their workplace by a trained in-house physician. Additionally, a control group of 80 expectant fathers were recruited from workplaces similar to those where the intervention group were employed.

Both the intervention and control group fathers participated in face-to-face interviews at three and nine months post-birth. All were asked the same questions that directly related to topic areas in the program (Sahip & Turan, 2007). Results indicated that fathers from the intervention group were significantly ($p<.01$) more likely than those in the control group to report supportive behaviors (such as attending antenatal visits

and helping with housework), support good nutrition for their partner, actively prepare for the birth and make joint decisions for infant care with their partner (such as support for breastfeeding). One challenge researchers faced was resistance by some of the employers to release the fathers to attend the program sessions. This resulted in attrition from an original intervention group sample size of 90 to 80 (Sahip & Turan, 2007).

Research has consistently posited that fathers are less involved than pregnant mothers in PPN parenting programs (Billingham, 2011; Davis, Vyankandondero, Luchters, Simon, & Holmes, 2016), which may or may not be attributed to their willingness to participate. Barriers may be defined as physical (cannot leave work to attend a program), financial (cannot afford to take time off from work), emotional (fear, insecurity, anxiety), and socio-cultural (the belief that having babies is woman's work). Socio-cultural norms appear to play a significant role in expecting fathers' PPN parenting program participation, impacting program content, accessibility and delivery.

The influence of socio-cultural norms on father attendance at PPN parenting programs.

The trend of lack of male involvement in child health services and pregnancy education programs is common in the Pacific region (Davis et al., 2016). This is largely due to expecting fathers not being actively engaged by services, along with the socio-cultural norms that pregnancy, child bearing, and raising a child is a woman's role (Davis et al., 2016). This perspective is not isolated to the Pacific region; it has been consistently found to apply in the Western world (e.g., Alio et al., 2011a). There has been a perceived socio-cultural legacy of men attaining a position of power by maintaining the inequity in pregnancy and post-birth emotional and practical support to partners and their children (Alio et al., 2011a; Brotherson, Dollahite, & Hawkins, 2005). These traditional outlooks are aligned with Connell's (1995) Gender Theory that was built on the premise that the "social structure of gender is a way of structuring social practice" (p. 81); the position of power is one of the theory's core elements. Connell (1995) supported the belief that men have historically been accustomed to holding a patriarchal dominant role in society and that this is changing. Specifically, there has been more compromise and negotiation between men and women in relationships and this has led to more equal participation in family-related duties (Connell, 1995).

In a semi-structured, in-depth interview study conducted in the Pacific region in 2011/2012, mental and child health policymakers and practitioners (n=18) responded to a series of interview questions (Davis et al., 2016). The aim was to learn more about perceived benefits, challenges, and risks to increasing fathers' involvement in pregnancy and child-related services and programs offered in the region (Davis et al., 2016).

Thematic analysis revealed that across respondents there was agreement that increasing the engagement of men is important; culturally they are the decision makers for family health matters. Therefore, if they became informed about risks and problems mothers and babies can face during pregnancy and beyond, fathers could make pro-health decisions (such as enabling the mother to attend programs and antenatal care) (Davis et al., 2016).

Davis et al. (2016) suggested one barrier to success of engaging fathers is that prenatal health care centers are typically under-resourced; reaching out to fathers is a low priority given the cultural trend that it is women's business. This has been coupled with health worker attitudes in support for the cultural stereotype (Davis et al., 2016). Additional barriers cited included inflexible clinic hours (clashed with times that fathers were at work), and content that did not focus on the fathers' perspective or their needs (Davis et al., 2016).

Davis et al. (2016) proposed five recommendations for consideration when designing future maternal and child health services and PPN parenting programs. They included: (a) offering sessions for fathers only during work breaks; (b) holding classes at times fathers would be open to coming to (e.g., "grog" sessions where fathers can talk together in a social environment whilst drinking a few beers); (c) instigating group talks among fathers so they can share their experiences, fears, and needs, and seek support; (d) incorporating fathers in discussions when both mothers and fathers attend a session, by contextualizing how concepts being spoken about relate to him as a father; and (e) having male facilitators.

Sweden is one country where the cultural norm has been to focus on active and equal parenting, thereby actively reducing barriers expecting fathers face. Social policy on parental leave was amended in the 1970s so that men received equal rights to stay at home with their children (Plantin, Mansson, & Kearney, 2003). In a qualitative interview study involving 30 Swedish couples, all men were pro-gender equality and stated a desire to have shared responsibility in the context of family duties and wanted to be "tender," "open", "fair," and "supportive" of their partner and child/ren (Plantin et al., 2003). This suggested that when considering Gender Theory, social practice can be amended as an outcome of males being aligned with equality. Swedish social policy—having fathers equally involved in family care— is evidence of this. Such equality is not consistent amongst all Western cultures, with only 13% of employers in the USA providing extended paternity leave (more than the 12 weeks unpaid leave available as a standard) (Bond, Galinsky, Kim, & Brownfield, 2005).

PPN parenting programs designed for fathers only have included two focus areas: paternal anxiety and young fathers (aged between 15 and 25 years at the time of the baby's birth).

Program Focus: Paternal anxiety

The need for father involvement in PPN parenting programs has been the focus of research in an attempt to mitigate paternal anxiety (e.g., Condon, 2006). The literature postulated that it is common for fathers to feel anxiety and apprehension during the transition to parenthood (Condon, 2006). If prolonged, it can negatively affect a father's ability to bond with his baby (Bogels & Phares, 2008). A repeated measure, randomized cohort study was undertaken in Perth, Western Australia and aimed to identify the impact of fathers' participating in a PPN parenting program (Tohotoa et al., 2012). The study addressed subsequent levels of anxiety in the postnatal time and anxiety was measured using Hospital Anxiety and Depression Scale (HADS) (Tohotoa et al., 2012). The intervention group (n=289) received routine antenatal classes along with one-hour sessions for fathers only (that were facilitated by male educators at each antenatal class). Program content focused on the role of the father, breastfeeding and managing expectations for infant care (Tohotoa et al., 2012). The control group (n=244) attended the routine antenatal classes only. At six weeks post-birth, results showed a statistically significant reduction in self-reported anxiety by fathers from the intervention group. Qualitative feedback revealed that 96% of fathers in the intervention group perceived the father only sessions as positive (e.g., "practical information of what to do," "great to talk to other fathers") (Tohotoa et al., 2012). The authors concluded that postnatal anxiety for fathers could be reduced as an outcome of timely and relevant pregnancy and post-birth information being shared (Tohotoa et al., 2012).

The control group from Tohotoa et al.'s (2012) study, experienced a marginally significant reduction in anxiety ($p<.04$) between baseline and six weeks post-birth. This result was not consistent with previous literature where HADS had been utilized to measure fathers' anxiety pre- and post-birth (e.g., Liber et al., 2008). Future research could repeat the study targeting a larger cohort, to determine if greater effect sizes between treatment and control groups become evident when measuring change in paternal anxiety.

Program Focus: Young fathers.

The inclusion of young fathers (aged between 15 and 25 years at the time of the baby's birth) in PPN parenting programs has received attention in Canada. This was primarily in response to social stigmas that suggested attending PPN programs and services was seen as a sign of failure and neediness (Deslauriers, Devault, Groulx, & Sevigny, 2012). Specifically, the Perinatal and Infancy Program (Ministere de la Sante et des Services Sociaux, 2004, as cited in Deslauriers et al., 2012) was designed to target the needs of young fathers. Program delivery was

creative, flexible and informal to ensure young men were engaged and felt comfortable to attend. These modifications included the following: arranging informal gatherings of young men in their homes and at sporting venues; having sport and outdoor activities as a part of the program to build trust, social connections, and comraderie; and having group discussions and an experiential focus to discuss the content (e.g., views of fatherhood, goals as fathers, parenting skills, role identity, child development principles, how to support the mother) (Kiselica, 2008).

To learn more about young fathers' needs and experiences with pregnancy-related services, Deslauriers et al. (2012) devised a qualitative study that was undertaken in the provinces of Ontario and British Columbia, Canada. The study involved interviews (n=15) and five focus groups (n=28) of young fathers (mean age = 24.8 years). Upon completion of thematic analysis, results revealed that young fathers: (a) felt negatively judged by support services aimed at pregnancy care and that they were not taken seriously, (b) had a need to have somebody to talk with for guidance as a father and also to receive positive reinforcement when they did a good job (consistent with behavior modification theory), (c) had a desire to meet regularly with other fathers and a facilitator to discuss challenges, and (d) did not feel as though their emotions were taken into account during a pregnancy and beyond (Deslauriers et al., 2012). The authors suggested future programs that target young fathers ought to take their needs and emotions into account and be delivered by facilitators and services that can remain judgment free.

Couples as the Primary Focus in PPN Parenting Interventions

Research focusing on the transition to parenthood for mothers and fathers as a couple did not emerge until the late 1950s. LeMasters (1957) initially claimed that "83% of new parents have experienced moderate to severe crisis in their marital and family life in the first year following the birth of their first child" (Cowan & Cowan, 1995, p. 412). Laycock (1967) also argued that crisis is common as human beings are the only species who do not have innate knowledge of human development or of what is required to successfully transition into the role of a parent. To evaluate the rigor of LeMaster's (1957) claim, a range of studies were completed during the 1960s to 1980s with inconclusive results. Findings varied between the assertion that whilst the transition to parenthood is stressful, it is also manageable (e.g., Hobbs & Cole, 1976) and that no difference was found in the decline in marital satisfaction between couples with and without children (e.g., MacDermid, Huston, & McHale, 1990; White & Booth, 1985).

Much research has been conducted with consistent and comprehensive findings over the past 25 years. Examples include: (a) the transition to parenthood, as a developmental life change, can reduce

resources a parent has (i.e., time to access valued support people like family and friends) (Crawford & Huston, 1993). This can amplify pre-existing challenges such as marital discord (Hinde & Stevenson-Hinde, 1988); (b) a baby's growth and development may be less than optimal if stress and distress is present in the couple's relationship during the pregnancy and beyond (Cowan, 1992); (c) less quality and intimate time shared by couples (LaRossa & LaRossa, 1981; Osofsky & Osofsky, 1984); (d) the tendency for couples to move into more traditional gender roles (Katz-Wise, Priess, & Hyde, 2010). This is associated with the perception of unfairness in how parenting and household duties are distributed, leading to decline in relationship satisfaction (Goldberg & Perry-Jenkins, 2004); and (e) increased risk of depression in both males and females (Cutrona & Troutman, 1986).

Evidenced by the growth in the current literature, potential challenges can and do accompany a couple's transition to parenthood. Two prominent studies have looked at evidence-based programs targeted to pregnant couples.

Evidence-Based Couple Focused Interventions

Pinquart and Teubert (2010) completed a meta-analysis of 21 couple focused interventions (N=1230 for parent intervention group participants; N=1109 for control group participants). Each utilized expecting and new parent samples and examined effects of randomized controlled trials that focused on advocating effective parenting in the transition to parenthood. To be included in the meta-analysis five criteria needed to be met:

1. The study incorporated a control group,
2. Intervention had to have couple focused components,
3. The intervention had to be delivered either during pregnancy or up to six months post-birth,
4. Effect sizes needed to be able to be compared, and
5. There had to be at least one publication about the study available (Pinquart & Teubert, 2010).

One initial study that focused on couples during the PPN timeframe was undertaken in the early 1970s (Leibenberg, 1973). At the time of publication, studies were included up until 2010. Interestingly, only 14 of the programs investigated (67%) included both mothers and fathers. A further six utilized mothers only (29%), and one (4%) used a father sample exclusively. Programs were equally distributed between their delivery being undertaken before birth, post-birth only, and spanning both time periods. On average, programs involved 11.4 sessions. Results consistently revealed very small effects being observed for couple

adjustment (*d*=.09) and communication between couples (*d*=.28) (Pinquart & Teubert, 2010). This suggested that an opportunity may exist to improve the effectiveness of programs for couples transitioning to parenthood. The low effect sizes observed were consistent with previous universal prevention-based programs that were designed to reach large populations (Burig, 2002). Overall, couples had greater improvements when the program met the following three criteria. Firstly, the program had more than five sessions. Secondly, content focused on education and skills for both pre- and postnatal times. Thirdly, delivery of the program was led by a professional trained in PPN parenting education and facilitation, as opposed to a semi-professional (Pinquart & Teubert, 2010).

Results from these studies bring to light positive shifts during the past 20 years in content and delivery of PPN parenting programs. More emphasis has been made to include both mothers and fathers in parenting programs as well as adding skills to enhance the couple relationship to enrich the mother, father, and baby relationship during the transition to parenthood (Nolan, 1997). Along with these changes, two consistent areas of focus in current PPN parenting programs that target both mothers and fathers as a couple, include relationship adjustment post-birth and couple psychoeducation.

Program Focus: Couple Relationship Adjustment Post-Birth

Adjustment within a couple's relationship as they transition to parenthood has been explored over the past few decades. One recent study measured couple relationship adjustment post-birth and involved Australian parents expecting their first child (Halford, Petch, & Creedy, (2010). In this two-group intervention study participating parents were randomly assigned to either the Couple Care for Parents (CCP) program or the Becoming a Parent (BAP) program. Thirty-five couples completed the CCP program, which involved six units that incorporated an antenatal workshop facilitated by the lead author in a clinic. Participants also completed five self-directed units in their home. The entire program required 17 hours of time starting at the 32nd week of gestation to three months post-birth (Halford et al., 2010). The BAP program involved mothers only (*n*=36). Content was derived from literature and did not include material that focused on couple relationships. It did deliver the same content on antenatal aspects as in CCP; however, it was completed via one home visit and five telephone calls. The entire program took five hours to complete. Respondents in both groups completed a battery of pre, post and 12-month follow-up intervention surveys measuring adjustment, couple communication, and consumer satisfaction (Halford et al., 2010).

Results indicated that CCP reduced negative couple communication and, for women only, prevented negative relationship adjustment. No differences were found for parenting adjustment between CCP and BAP.

The authors concluded that CCP showed promise for couple relationship education during pregnancy (Halford et al., 2010). However, limitations included the absence of a control group and delivery of all sessions by the lead author only, which may have biased results due to therapist expectations.

The Department of Health in the UK recently commissioned a study that utilized expert opinions from a reference group that included a cross-section of mothers, fathers, and professionals (Billingham, 2011). The goal of the study was to generate recommendations for future programs and services that targeted pregnancy, birth and beyond (Billingham, 2011). A summary of the expert group's perception of key points to consider when creating a program for preparation for parenthood included the following: addressing emotional, psychological and biological changes for the mother; providing information on developmental milestones of the growing pre-born; empowering parents to feel in control of their pregnancy and birth; and addressing the needs of the father as well as recognizing his needs may be different to the mother (Billingham, 2011).

Based on the participating experts' feedback, a framework for intervention was proposed and comprised six core themes:

1. The development of my/our baby,
2. Changes for me and us,
3. Our/my health and wellbeing,
4. Giving birth and meeting my/our baby,
5. Caring for my/our baby, and
6. Who is there for us; people and services (Billingham, 2011).

Each of the themes incorporated a menu of topics that participants selected from that best met their needs and unique circumstances. Billingham (2011) stated that the study was the first step in creating prenatal education that had relevance to expecting parents.

Partner relationship satisfaction as a result of the transition to parenthood has been researched as another aspect of couple relationship adjustment. Specifically, Mortensen, Torsheim, Melkevik, and Thuen (2012) conducted a Norwegian based mother and child cohort study that spanned a decade (1999-2009). The study involved 71,504 pregnant women. Results revealed that mothers who had given birth for the first time whilst involved in the study, reported statistically significant higher levels of relationship satisfaction at the time of childbirth ($p<.001$) than mothers who had previously birthed. Further, having a planned versus unplanned pregnancy resulted in higher relationship satisfaction at the time of childbirth ($p<.001$). Lastly, married mothers reported higher levels of relationship satisfaction after transitioning to parenthood at the time of childbirth than did mothers who were in de facto relationships ($p<.001$) (Mortensen et al., 2012).

Regardless of the differences between groups, there was a statistically significant decline in relationship satisfaction post-birth (p<.001) for all participants (Mortensen, et al., 2012). This result was consistent with earlier literature (Hanson, 1985; Simbar, Nahidi, Tehran, & Ramezankhani, 2010). The authors recommended future interventions also include fathers for two reasons. First, to learn more about fathers' needs during the transition to parenthood. Second, to ensure content is included that focuses on ways couples can harness relationship satisfaction throughout a pregnancy and beyond (Mortensen et al., 2012).

Program Focus: Couple Psychoeducation

Halford and Petch (2010) championed the concept of Couple Psychoeducation (CP) during the transition to parenthood and found that responsiveness of parenting is linked to the extent to which a couple can be supportive of one another. CP has been defined as "any educational attempt to enhance couple relationship functioning or parenting or to prevent relationship deterioration, after the birth of a first child" (p. 164). Another term used in the literature closely associated to CP is Couple Relationship Education (CRE). The focus is similar regarding sharing knowledge, attitudes and skills that aim to help couples sustain their relationship post-birth in a healthy way (Petch, Halford, Creedy, & Gamble, 2012).

The essence of CP (and CRE) can be linked to Attachment Theory. CP (and CRE) was based, in part, on building the skills of sensitive-responsiveness, defined as the caretaker's ability (traditionally the mother) to accurately interpret the infant's needs and respond appropriately and in a prompt timeframe (Ainsworth, Blehar, Waters, & Wall, 1978). The literature has consistently supported the belief that the mother's ability to be sensitive-responsive to her infant is linked to positive outcomes involving: cognitive and language development (Brooks-Gunn, Han, & Waldfogel, 2002); emotional self-regulation ability (Belsky, Youngblade, Rovine, & Volling, 1991; Blasco, 2003); healthy neurological networks due to oxytocin and serotonin being released (Bavolek, 2016); heightened self-worth (Bavolek, 2016); and enhanced secure attachment that extends to future adult relationships (Cassidy & Shaver, 1999; van Bussell, Spitz, & Demyttenaere, 2010; Young, 2013).

In mother only samples, sensitive-responsiveness has been shown in meta-analyses to be significantly correlated with secure attachment when effect sizes are considered (r=.24-.32) (e.g., Atkinson et al., 2000). Further, significantly enhanced secure attachment by infants aged birth to four years (p<.01) has been found in controlled trials where parental responsiveness to the infant increased as an outcome of engagement in behavioral-based parenting interventions (p<.001; Bakermans-Kranenberg, van IJzendoorn, & Juffer, 2003). Whilst research conducted

in the past decade has started to recognize that a father's ability to be a sensitive-responsive parent is also an important influencing factor for infant development (Elliston, McHale, Talbot, Parmley, & Kuersten-Hogan, 2008), the literature is limited.

As previously discussed, a decline in relationship satisfaction during the transition to parenthood is common. One consequence is that the decline is associated with negative parenting practices such as low sensitivity-responsiveness to the infant (Halford & Petch, 2010). For couples who have the skills to communicate positively, to collaborate as a team when parenting (Gordon & Feldman, 2009), and to individually make an effort to sustain the relationship (Halford, Markman, Kline, & Stanley, 2003), research has shown a positive association with reduced stress, secure infant attachment and positive co-parenting built on the premise of both parents being sensitive-responsive to the infant (Florsheim et al., 2003).

Halford and Petch's (2010) meta-analysis of CP programs offered to pregnant couples, examined the effects CP programs have on couple relationship and adjustment to parenting. Only seven randomized trial studies that reported on couple satisfaction were included (for a full summary of studies included see Halford & Petch, 2010). Results showed that programs varied between five to 10 sessions and ranged from one to two hours duration each. Content varied from infant care by fathers (Doherty, Erickson, & LaRossa, 2006) to the couple relationship and parenting (Cowan & Cowan, 1995; Halford et al., 2010). Five of the seven studies found positive change in couple relationship satisfaction pre and post, when measured via scales (e.g., Children and Parenting subscale of PREPARE Inventory). In all instances the majority of program content focused on the couple relationship during the transition to parenthood (Halford et al., 2010; Kermeen, 1995; Midmer, Wilson, & Cummings, 1995; Schultz, Cowan, & Cowan, 2006; Shapiro & Gottman, 2005). Halford and Petch (2010) concluded that CP programs can enhance the experience of transitioning to parenthood. However, to be of optimal effect, the authors argued that future programs need to include content that is focused on the following: infant care; parenting expectations; communication and conflict management skills; maintaining affection and intimacy post-birth; and mutual emotional and practical support and increased social support. Halford and Petch (2010) observed that timing the delivery of existing CP programs in the fourth trimester was a limitation; attendance was often low given time limitations for new parents (Petch & Halford, 2008).

Future research that trials CP programs during the prenatal time may be warranted; the literature has supported that this can be an impactful time for the mother, father, and pre-born alike. Four key examples of possible impacts have been identified: (a) neural development of the pre-born (Castillo, Welch, & Sarver, 2011; Schore, 2000); (b) attachment predisposition between parents and baby (Eichhorn, 2012;

Martin, 2003); (c) genetic engineering (Janov, 2009; Lipton, 2008; Weinhold, 2012); and (d) the couple relationship as expecting parents prepare to transition away from a partner relationship to a parenting one (Billingham, 2011; Schulz et al., 2006).

Summary

PPN parenting education has evolved to meet the needs of expecting parents and to ensure best outcomes for families. In the earliest examples, teachings were transmuted from woman-to-woman via the family unit across generations. Over time, programs progressed to include midwives and parenting advice books. More formalized childbirth education was then offered with curricula, certification and licensing being required to deliver education to parents. Focus expanded to incorporate natural pain management exercises (i.e., Lamaze) as a part of education for navigating the labor and birthing process.

A natural progression for PPN parenting programs was the call to incorporate solid theoretical underpinnings. The intention was to include sound methodology in the design and delivery of programs and to ensure factors of interest could be consistently and reliably measured.

A tendency across time has been for PPN parenting programs to be offered in the final trimester of pregnancy. Technology has enabled the ability to be flexible in timing as well as the mediums for delivery of education allowing for widespread accessibility at any time during a pregnancy. Exploring the most effective times throughout a pregnancy to share information provides an opportunity for investigation.

Three categories of consumer groups have been consistently discussed in the literature. They included mothers-only, fathers-only, and expecting couples.

Opportunities for Developing Needs-Based Programs for Future Parents

Challenges were identified in the studies discussed that could be addressed by future research. These included:

- the inclusion of the father in PPN programs to become the “norm,”
- targeting PPN programs to focus on strengthening the couple relationship in preparation for the transition to parenthood (e.g., the inclusion of CP programs),
- incorporating knowledge and skills on how couples can create a sustainably healthy lifestyle for themselves and the pre-born from conception onwards,

- increasing the sample sizes utilized in studies to enable greater generalizability,
- strengthening methodological procedures to include control groups,
- understanding and exploring evolving theories that are relevant in explaining influencing factors on the pre-born during the PPN time to birth educators and parents,
- exploring factors that parents and birth professionals deem as essential for inclusion (or exclusion) in PPN parenting programs moving forward. This could ensure the foundation for positive transition into parenthood is solid and relevant to modern times,
- determining the most effective ways to disseminate PPN parenting programs to disadvantaged groups,
- educating people wanting to conceive and already expecting parents of the value in PPN parenting programs as well as where to access programs, interventions, information and resources, and
- understanding the most appropriate timing of a pregnancy to engage expecting parents in PPN parenting programs.

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